Quiz 7

Instructions: Legibly complete each of the following on lined paper and submit on Gradescope. Collaboration and outside help (in any form) are forbidden.

1. Diagonalize the matrix $M = \begin{bmatrix} 10 & 2 & -5 \\ -4 & 0 & 3 \\ 16 & 4 & -8 \end{bmatrix}$ if possible.

2. Diagonalize the matrix $M = \begin{bmatrix} -1 & 4 \\ 2 & 1 \end{bmatrix}$ if possible.

3. Apply the Graham-Schmidt process to the basis $v_1 = \begin{bmatrix} 1 \\ 1 \\ 2 \end{bmatrix}$, $v_2 = \begin{bmatrix} 2 \\ 1 \\ 1 \end{bmatrix}$, $v_3 = \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$ of $\mathbb{R}^3$.